Resiliency and Quality of Life in Patients With Cancer: Moderating Role of Duration of Awareness of Cancer

Siavash Talepasand[1], Fatimah Pooragha[1], Maryam Kazemi[1]

Abstract

Background: Cancer detection always has a lot of stress and nervousness which, apart from physical injuries, will affect quality of life. The aim of this study was to investigate the relationship between resiliency and quality of life by moderating the role of duration of awareness of cancer.

Methods: Population of the study included all patients with cancer who were under treatment in Yazd Forat hospital. Using convenience sampling method, 105 patients were selected to participate in this study. All subjects completed the Quality of Life Questionnaire specialized for cancer and resiliency Questionnaire. Data were analyzed by regression analysis model and Johnsen-Neyman technique.

Results: The findings of this study revealed that the time duration of awareness of cancer plays a moderating role in the relation between the general dimension of quality of life and resiliency. In patients who were aware of their disease for over 12 months, the relationship between resiliency and the general dimension of quality of life was significant. In addition, high levels of resiliency showed a positive and significant relationship with physical dimension of life quality. While in patients who were aware of their illness for less than 12 months, resiliency scores showed a significant relation with emotional dimension of quality of life.

Conclusion: Awareness of disease has different mental effects on cancer patients, and resiliency and maintaining this feature for long-term is associated with the increase of quality of life in these patients. Theoretical implications of finding are discussed in detail.

Keywords: Cancer; Quality of life; Resiliency; Detection duration

1. Dept. of Psychology, Semnan University, Semnan, Iran

Corresponding Author:
SiavashTalepasand, PhD; Associate Professor of Educational Psychology
Tel: (+98) 231 334 15 53
Email: stalepasand@semnan.ac.ir

Introduction

Cancer is one of the major problems of public health worldwide, and it is estimated that nearly 15 million people will have cancer by the year 2020; about 60% of all cancers will occur in developing countries [1]. Nowadays, the word "cancer" is associated with life threat, death and even avoidance of this disease's name. Moreover, patients should consider different methods of treatment such as surgery, radiation and chemotherapy[2]. Even when the treatment is successful, patients live with the fear of relapse and complications of the treatment. Different methods of treatment and providing care for patients with cancer can distress the daily life of patients and affect their quality of life [1, 3].

The World Health Organization (WHO) defines quality of life as a subjective perception that an individual has of his position in life, in a cultural setting and in a set of values in which he lives, in relation to his aims, expectations and worries [1]. Also, due to rising health care costs, and people's concerns about the effectiveness of treatment interventions, recently, a branch of life quality called health related quality of life has become the most important goal in the treatment of chronic diseases. Health related quality of life is important, especially for patients who cannot be cured [4]. Studies show that cancer patients compared with those who don't have cancer report more psychological problems, poorer health and greater limitations in their functionality [5]. People who are diagnosed with cancer at ages younger than 45 are more likely to experience psychological problems that can be more severe as the time passes [6]. The results of extensive research on patients shows that 73% of those treated for more than 2 years report some kinds of depression of the disease during their illness [7]; and more than half of these patients express that the emotional effects of cancer caused more problems

for them than the medical effects. However, the results of these studies showed that despite these adverse effects, some patients believe that the experience of cancer has improved their lives [7, 8].

Today, in the field of positive psychology, some factors bring more compatibility with the needs and threats of life [9]; one of these basic constructs is resiliency. Masten regards resiliency a process, ability or outcome of successful adaption with threatening condition and defines positive adoption in response to adverse condition [8]. Studies in cancer patients show high levels of resiliency that help individuals use positive emotions to go beyond unpleasant experiences and improve their quality of life. For instance, a study done by Gotay et al. on patients with breast, stomach and lung cancer showed that resiliency is related to better quality of life and low levels of depression [10]. Another study examined pain in cancer patients who were undergoing radiotherapy and the results showed that resiliency is a strong predictor of quality of life and adoptability in patients [11].

Accordingly, conventional medical treatments for cancer and their side effects reduce quality of life and resiliency as a strong psychological construct and can play a contrasting role. In addition, duration of cancer awareness is a probable moderating variable which moderates the relation between resiliency and quality of life. As the duration of individual's awareness of cancer increases, the patient gradually understands that he will be faced with some problems in his life functions. Thus, in this study, positive psychological components such as life quality and resiliency in cancer patients will be studied with a moderating role of individual's awareness of cancer.

Materials and Methods

This is a correlational study. Population of this study included all cancer patients who were under treatment in Yazd Forat Hospital in 2012. In this study, 105 cancer patients were selected using convenience sampling method. They were asked to complete the quality of life questionnaire specialized for cancer patients and resilience questionnaire.

Tools

A) *Quality of Life Questionnaire Related to the Health of Cancer Patients (EORTC QLQ-C30):* This questionnaire is used for all kinds of cancers and was developed by a European Organization for Research and Treatment of Cancer (EORTC). This questionnaire includes 30 items and has been organized in 9 subscales: physical function, role function, cognitive function, emotional function, social function, global health, fatigue, nausea, vomiting and pain. In all subscales —except global health dimension- the increase of score indicates a decrease in quality of life. The obtained reliability for the questionnaire was about 0.98 by Cronbach's Alpha's method [12].

B) *Resiliency Scale:* In this study, Conner-Davidson's Resiliency Scale was used [13]. This scale can distinguish resilient individuals from non-resilient ones in clinical and non-clinical groups and in some situations it can be used according to research and clinical cases. Resiliency scale has 25 items which is scored between 0 to 5 (quite correct—quite incorrect). In Iran, this scale was normalized by Mohammadi and its validity and reliability was obtained. Calculating the correlation of each score with total score showed that except for the third item, the coefficients' range was between 0.41to 0.64. In the next phase, scale items were factor analyzed using principle component method. Cronbach's Alpha's method was used to determine scale reliability and the obtained reliability coefficient was equal to 0.98 [14].

To investigate the effect of role of time duration in patients' awareness of cancer on the resiliency and quality of life, the sample was divided into two groups based on their time duration of awareness of cancer. One group found out about their cancer in less than 12 months and the other group learned about it 12 months before or more. The slope and regressions lines' intercept and interaction effect were tested. The cases in which the interaction effect was meaningful were used to investigate the type of interaction and determine the meaningful areas. In so doing, syntax of MODPROBE was applied and then, according to this order, a program under SPSS-19 software was prepared.

Results

The sample of this research included patients with different types of cancer. Among all types of cancer (blood, lymphoma, gut, stomach, breast, womb, lung, etc), blood cancer (32.2%) was the most common among the subjects, and a few were affected by belly lump (5.7%). The average age of patients was 40.60 ± 9.30 and the average of time duration for receiving the detection of cancer and receiving treatment was 12.72 ± 8.62 months. Women covered 53.8% of the sample.

Mean, standard deviations and correlation matrix for resiliency and parameters of quality of life are presented in Table 1. The findings show that in the group that have been aware of their cancer

for more than 12 months, resiliency had a positive relationship with quality of life in physical dimension (r = 0.335, p < 0.05). Also, resiliency showed a positive relationship with quality of life in global dimension (r = 0.45, p < 0.05). In the group which have been aware of their cancer less than 12 months earlier, shows a positive relationship with quality of life in emotional dimension (r=0.39, P<0.05) (Table 1).

The results of the regression analysis demonstrate that the time duration of awareness of the cancer plays a moderating role only in the relation between the global dimension of quality of life and resiliency (Table 2). The finding of the interaction effect shows that the predictive variables (group's resiliency based on the time duration of the detection and their interaction effect) can predict 15% of variance of quality of life in cancer patients (R^2 =0.15, F= 6.02, P <0.05). Meaningfulness of the interaction signifies the fact that the regression line is different between the two groups. To find the contact point, intersection of the two regression lines was considered and to determine the meaningful areas, Johnsen-Nayman technique was applied (Table 3).

Table 1. Correlation matrix between resiliency and quality of life

Variable	X>12 M±SD	X<12 M±SD	1	2	3	4	5	6	7	8	9	10
1. Resiliency	59.6±10.3	56.7±11.9**a	.883	.335**	.114	.172	.180	.170	.448**	-.008	.233	.076
2. Physical	12.1±3.4	10.4±2.6	.230	.851	.644**	.530**	.470**	.393**	.465**	.652**	.249	.667**
3. Role	4.7±1.1	4.3± 0.94	-.120	.333*	.602	.519**	.406**	.088	.283*	.451**	.396**	.499**
4. Cognitive	4.7±1.2	4.1±1.3*	.220	.526**	.296*	.606	.547**	.447**	.480**	.576**	.379**	.640**
5. Emotion	10.4±2.0	9.7±1.9*	.390**	.491**	.108	.341*	.613	.270*	.478**	.482**	.381**	.603**
6. Social	5.4±1.3	5.2±1.4	.063	.390**	.497**	.332*	.212	.848	.264*	.399**	.079	.393**
7. Global	5.2±1.0	4.8±1.1*	.086	.446**	.223	.256	.619**	.235	.642	.108	.331*	.332*
8. Fatigue	7.9±1.6	7.1±1.4**	.216	.562**	.305*	.556**	.454**	.304*	.351*	.606	.233	.879**
9. Nausea	4.3±1.2	4.1±1.1	.146	.311*	.234	.126	.287	.241	.195	.333*	.776	.177
10. Pain	5.2±1.3	4.3±1.1**	.112	.494	.239	.218	.487**	.143	.438**	.544**	.368*	.697

Note: a. two groups were compared by t- test, bold correlation = more than 12 month awareness of the cancer or x>12, Coefficient Alpha reliability estimates = main diagonal* P<.05 **P<.01

Table 2. Resiliency, awareness of patient and interact standard coefficients

Variable	B	SE	T	P
Resiliency	.008	.01	.634	.526
Group	-1.68	1.06	-1.585	.115
Interacts	.03	.01	2.005	.047

*Depended variable: General quality of life

Table 3. Conditionaleffect of focal predictor at values of the moderator variable

Group	B	SE	t	p	LLCI	ULCI
X<12	.008	.012	.634	.526	-.0169	.0328
X>12	.043	.012	3.435	.0009	.0185	.0691

*Depended variable: General quality of life

The contact point of the two regression lines was gained through equation 1:

$$x = \frac{a1-a2}{b2-b1} = \frac{4.31-2.63}{.044-.008} = 46.72 \,(1)$$

The findings revealed that the more we approach the contact point of the regression lines, the less the difference between cancer patients in terms of global quality of life. In patients with longer detection of their cancer, the relationship between resiliency and quality of life is more significant. When the resiliency score of people reaches 57.85 or more, a meaningful difference can be observed between the two regression lines (Table 3). In cases in which the resiliency score is less than the referred point, no meaningful relationship is seen between the two groups in terms of resiliency and global quality of life (Figure 1).
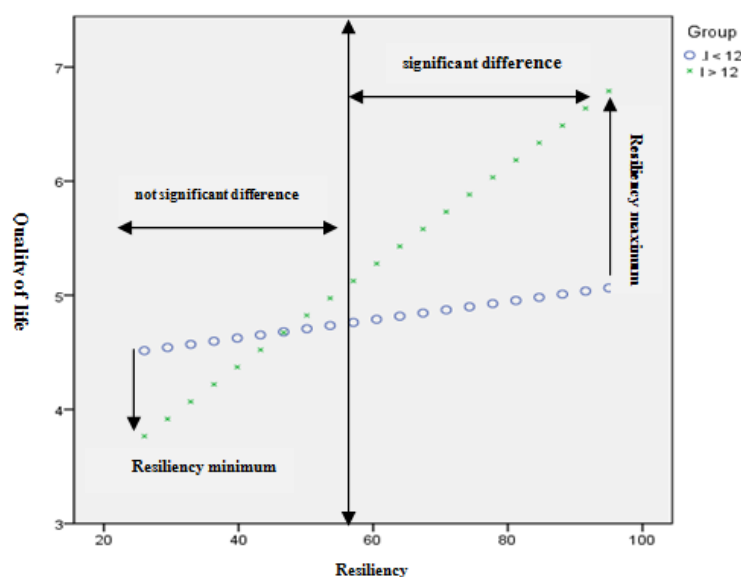
Figure 1. It shows the regression lines for resiliency and quality of life in under comparison groups.

Discussion

The purpose of the present study was to investigate the amount of resiliency and quality of life in cancer patients with regards to the effect of interaction of the time duration of awareness of cancer. The results showed that in patients who were aware of their disease for more than 12 months, there was a meaningful relationship between the amount of resiliency and quality of life in high levels of resiliency. In other words, just being resilient is not enough. If the level of resiliency is higher than a special point, it can help improve the person's global quality of life. Although previous studies reported that resiliency has a positive relationship with quality of life [8, 10, 11]. The findings of this research showed that in high levels of resiliency, this relationship is different in patients who were aware of their cancer for more or less than 12 months. Therefore, the findings of this research are not only in line with previous studies, but also make a step forward to improve them. Resiliency is among variables that improves personal feelings in cancer patients and helps them to be inclined to try to stay alive and also leads to a better understanding of the factors promoting well-being [15]. Cancer threatens the person's independence and ability to participate effectively in the family and society and pushes him towards feelings of lack of competence and lack of self-confidence. Accordingly, the age of being affected by cancer and the amount of disablement and loosing personal, familial and social roles add to its effect on the quality of life [16].

The other finding of this research showed that in the group with more than 12 months awareness of cancer, there was a positive relationship between resiliency and quality of life in physical dimension. This relationship can be explained with regards to the progress of cancer. As cancer progresses, quality of life in physical dimension decreases and resiliency increases. The results of the study done by Torkzahrani et al., showed a meaningful and reversed relationship between time duration after treatment and people's quality of life; therefore, as more time passed from detection and treatment of the disease, people had poorer quality of life [17]. However, in the study of Bradley et al, no meaningful statistical relationship was found between the age of disease detection, time duration passed after treatment, the stage of disease and type of treatment with people's quality of life [18].

Also, it was found that in the group with less than 12 months awareness of cancer, there was a positive relationship between resiliency and quality of life in emotional dimension. In other words, by the growth of the cancer, changes in emotional aspects of quality of life are not the same as the first year; and in this regard, it does not show a meaningful relationship with resiliency. Perhaps, this is due to the fact that the patient gradually finds out that dealing with this problem emotionally cannot help him/her. Previous studies done on cancer patients show that high levels of resiliency help patients use positive feelings and emotions to pass unfavorable experiences and return to favorable condition and

quality of life [8]. But in the present study, it is not true for patients with less than 12 months awareness of their cancer, and the relationship between resiliency and quality of life is more complicated than it was previously thought.

Among the limitations of this research we can refer to limited availability and number of intended patients, non-identification of the type of cancer (malignant or benign) and lack of separation of different types of disease like blood, gut, lymphoma and other cancers. Also, the design of the present study was correlational; thus, it is not possible to put forward causative statements regarding relations between variables.

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Conflict of Interest

The authors have no conflict of interest in this article.

Authors' Contribution

SiavashTalepasand designed the study and analyzed the data. Maryam Kazemi collected the data, SiavashTalepasand and Fatimah Pooragha wrote the draft paper.

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